

# Awareness and Use of the Prostate-Specific Antigen Test among African-American Men

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Although African-American men have a greater burden of prostate cancer than whites and other racial and ethnic groups, few studies on the burden of prostate cancer have focused on African Americans specifically. We used a sample of African-American men (N=736) who participated in the 2000 National Health Interview Survey to explore their awareness of the prostate-specific antigen (PSA) test. Among African-American men aged  $\geq 45$  with no history of prostate cancer, 63% had heard of the PSA test and 48% had been tested. Bivariate analyses showed significant associations between sociodemographic, family composition, health status and perceived risk with having heard of the PSA test and having been tested. The multivariate model showed significant associations between having heard of the PSA test and age, level of education, living in an MSA, and having private or military health insurance. For ever being tested, the multivariate model showed significant associations for age, private or military health insurance, being in fair or poor health, and having a family history of prostate cancer. Some of the correlates, such as age, increased levels of education and being married, were consistent with previous studies, but other correlates, such as metropolitan statistical area, health status and perceived risk, differed from previous studies.

**Key words:** prostate cancer ■ screening ■ prostate-specific antigen

## INTRODUCTION

Although deaths from prostate cancer have declined over the past several years, prostate cancer remains the leading cancer among men, and the second leading cause of cancer mortality among men in the United States.<sup>1</sup> During 2004, an estimated 230,110 men will be diagnosed with prostate cancer, and about 29,900 men are predicted to die from the disease.<sup>2</sup> African-American men have greater incidence of prostate cancer and higher mortality rates from the disease than other ethnic or racial groups in the United States.<sup>2</sup> Incidence among African-American men appears to be about 60% higher than the rate for white men.<sup>2</sup> Comparisons to Asian/Pacific Islanders are even more striking, as African-American men have more than three times the incidence and almost six times the death rate from prostate cancer.<sup>1</sup> In addition, there is some evidence that prostate cancer may develop at earlier ages in African Americans than in the general population.<sup>2,3</sup> Further, African-American men have a greater likelihood of more advanced stage at the time of diagnosis.<sup>4,5</sup> Finally, prostate cancer is more likely to occur in men with a first-degree relative (such as a father or brother) who has had the disease. It is not known whether the differences described are due to biology, behavior, environment, access to healthcare, culture or a combination of these factors.

The literature on awareness of prostate cancer and knowledge about the disease has been mixed over the past several years. Some studies have reported low levels of awareness and knowledge among men in general,<sup>6-8</sup> while others have reported moderate-to-higher levels of awareness and knowledge.<sup>9,10</sup> Other studies showed that African-American men have lower levels of knowledge regarding prostate cancer than white men.<sup>11,12</sup> Variables describing demographic and socioeconomic status variables, including years of education, level of income and race, have been associated with awareness and knowledge.<sup>11,13</sup>

White men are more likely than African Ameri-

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cans to undergo the prostate-specific antigen (PSA) test,<sup>13,14</sup> and being older<sup>14,15</sup> and having higher levels of education or income<sup>13,14</sup> have been associated with greater knowledge or test use.<sup>16</sup> Variables describing family have been linked to use of the PSA test. Being married has been associated with both increased knowledge and greater use of the PSA test,<sup>15,17</sup> and having health insurance has been linked to using the test.<sup>18</sup> Finally, spouses<sup>19</sup> and family members and friends have been found to have a role in screening decisions and test use.<sup>20</sup>

None of the studies specific to African-American men have examined associations of sociodemographic and related variables with either knowledge of prostate cancer or test use.<sup>8</sup> Furthermore, none of these studies examined other types of variables, such

as health status, family history and perceived risk of getting cancer among African-American men.

Using the National Health Interview Survey (NHIS) 2000, the present study examines knowledge about the PSA test and use of the test among non-Hispanic African-American men aged  $\geq 45$  by sociodemographic, family composition, health status and perceived risk variables. The major purposes of the study were to examine the prevalence of being aware of the PSA test and using that test and examining factors that may be related to both awareness and test use among African-American men.

## Method

The NHIS 2000 is a nationally representative health survey conducted by the National Center for

**Table 1. Characteristics of Non-Hispanic Black Men Aged 45 or Older, NHIS 2000 Survey**

<b>Sociodemographics</b>	<b>N</b>	<b>%<sup>a</sup></b>	<b>Health Status</b>	<b>N</b>	<b>%<sup>a</sup></b>
<i>Age (Years)</i>	736		<i>Health Insurance</i>	730	
45 to 49		29.5	None		13.4
50 to 64		45.2	Public		23.1
65+		25.3	Private/military		63.5
<i>Education</i>	723		<i>Health Status</i>	731	
< High-school graduate		34.6	Excellent		18.7
High-school graduate		30.9	Very good		20.5
Some college/tech school		20.9	Good		32.1
College grad		13.6	Fair or poor		28.7
<i>Poverty Threshold</i>	736		<i>Family History of Prostate Cancer</i>	686	
<200%		28.9	Yes		6.2
200-299%		13.7	No		93.8
300-399%		9.1			
400-599%		7.5	<i>Had Colorectal Screening<sup>b</sup></i>	505	
500%+		14.6	Yes		30.8
Unknown		26.2	No		69.2
<i>Region</i>	736		<b>Family Composition</b>	<b>N</b>	<b>%<sup>a</sup></b>
Northeast		16.6	<i>Marital Status</i>	733	
Midwest		16.8	Married/living with partner		63.0
South		58.8	Widowed		7.3
West		7.8	Divorced or separated		18.0
			Never married		11.7
<i>Metropolitan Statistical Area</i>	736		<i>Family Size (Persons in the Family)</i>	736	
No		13.9	1		27.6
Yes		86.1	2		34.8
			3+		37.5
<b>Perceived Risk</b>	<b>N</b>	<b>%<sup>a</sup></b>	<i>Family Structure</i>	736	
<i>Perceived Risk of Getting Cancer</i>	599		One adult, no children		27.6
Low		69.6	Multiple adults, no children		47.9
Medium		22.5	One adult, 1+ children		1.1
High		8.0	Multiple adults, 1+ children		23.3
<i>Perceived Amount of Cancer in Family</i>	657				
Low		80.5			
Medium		14.8			
High		4.7			

<sup>a</sup> Adjusted to the US 2000 Census; <sup>b</sup> Question asked of men  $\geq 50$  years of age.

Health Statistics.<sup>21</sup> NHIS data are collected through personal household interviews. The NHIS 2000 used a complex sample design involving stratification, clustering and multistage sampling. The NHIS 2000 survey collected information related to cancer prevention and control. African-American and Hispanic populations were oversampled to allow for more precise estimations. In the overall survey, men aged  $\geq 40$  were asked questions related to prostate cancer screening awareness and test use. Sample weights were constructed to reflect the total population of the United States in 2000.<sup>21</sup> More details of the overall study methods are available in the 2000 NHIS Survey Description.<sup>21</sup>

## Study Population

This sample was restricted to non-Hispanic African-American men aged  $\geq 45$ . Those men who reported having prostate cancer were excluded. Interviews were conducted with approximately 736 African-American male adults, with an overall adult sample response rate of 72.1%.

## Data Collection

Respondents were asked if they had heard of the PSA test, and if so, whether they had ever had a PSA test. We examined four sets of factors that may influence both having heard of the PSA test and ever having had a PSA test: sociodemographic, perceived risk, health status and family composition. Demographic variables included age, level of education, region of the country and metropolitan statistical area (MSA). Regions and MSAs are defined by the Census Bureau and Office of Management and Budget (OMB).<sup>22</sup> The OMB defines an MSA as one or more counties that contain a city of 50,000 or more, or an urbanized area that has a total population of at least 100,000. Family income was expressed in relation to federal poverty levels published by the U.S. Census.<sup>23</sup> For 2000, the poverty level for a family of four was set at \$17,603. "Unknown" family income was included as a category due to the relatively large rate (26.2%) of nonresponse for the question on income.

For family composition variables, marital status was divided into four categories, family size into three, and family structure into four categories (Table 1). Health-related variables included health insurance (none, public or private), reported health status or a self-assessment of general health (four categories), family history of prostate cancer, and whether respondents had received colorectal cancer screening.

For family history and perceived risk variables, first-degree family history of prostate cancer was obtained from several questions about cancer diagnoses in respondents' biological fathers, brothers and sons. For perceived risk of getting cancer (in

general) and perceived amount of cancer in one's family, respondents were asked subjective assessment questions about their likelihood of getting any type of cancer and the amount (low, medium or high) of any type of cancer in their families.

## Data Analysis

The statistical program SUDAAN<sup>24</sup> was used in the analysis to take into account the complex multistage probability sampling design of the NHIS 2000. The 95% confidence interval was used to assess variability in the estimates of percentages. General linear contrast measures were calculated to assess statistical significance of differences among men within the categories of a variable—for example, differences in test use with men from the northeast and men from the south. P values for general linear contrasts compare a row percent to its reference level. The Wald Chi-squared test was used to assess the association of each variable with the outcome variable after adjusting for age. The final logistic model contained 12 main effects. Odds ratios were used to examine the associations of independent variables with having heard of the PSA test and having been tested while adjusting for other variables in the model. Family structure was dropped due to its strong association with marital status and family size. Fifty-five of the 736 men interviewed were excluded from the study because they did not answer the question, "Have you ever heard of a PSA, or prostate-specific antigen test?"

## Results

Characteristics of non-Hispanic African-American men aged  $\geq 45$  (not suffering from prostate cancer) as determined from the NHIS sample are presented in Table 1. Approximately two-thirds were high-school graduates or above, more than half were from the south, and the majority resided in an MSA. Over half were married and had private and/or military insurance. Ninety-four percent had no first-degree family history of prostate cancer, and 69% had not been screened for colorectal cancer. Most of these men also perceived themselves at low risk of getting cancer in general, and most perceived the amount of cancer in their own family to be low.

Overall, an estimated 63% of African-American men aged  $\geq 45$  who did not have prostate cancer had heard of the PSA test, and 48% had had the PSA test (Table 2). For both having heard of the PSA test ( $N=681$ ) and having had the test ( $N=674$ ), significant associations were found in each of the four categories of variables. There were significant associations with all sociodemographic and family composition variables, all but one of the health status variables but none of the perceived risk variables. Specifically, being 50–64

years of age, having higher levels of education, higher incomes, living in the northeast versus the midwest, and residing in an MSA were associated with having heard of the PSA. Also, men who were married or living with their partners, men living in families of  $\geq 2$ , men with private or military health insurance, men with a family

history of prostate cancer, those who had been screened for colorectal cancer, and men with a high perceived amount of cancer in their families were more likely to have heard of the PSA test than others. For ever having had a PSA test (Table 2, column 2), significant associations were similar with the exception that men  $\geq 65$  were

**Table 2. Percentage of Non-Hispanic Black Men<sup>e</sup> age 45 or Older Who Had Heard of a PSA Test or Who Had Ever Had a PSA Test by Population Subgroups**

	N	Heard of PSA Test % <sup>a</sup>	CI <sup>b</sup>	GLC PV <sup>c</sup>	Wald PV <sup>d</sup>	N	Ever Had a PSA Test % <sup>a</sup>	CI <sup>b</sup>	GLC PV <sup>c</sup>	Wald PV <sup>d</sup>
All	681	63.2	58.8-67.5	674	47.7	43.7-51.7				
<b>Sociodemographics</b>										
<i>Age (Years)</i>										
45 to 49	164	54.7	45.5-63.9	ref	0.07	163	29.3	22.1-36.5	ref	0.00
50 to 64	325	67.5	61.1-73.9	0.03	320	51.3	44.9-57.6	0.00		
65+	192	64.5	57.5-71.5	0.08	191	54.7	46.7-62.7	0.00		
<i>Education</i>										
< High school graduate	242	46.3	39.8-52.7	ref	0.00	242	37.1	31.0-43.1	ref	0.00
High school graduate	195	70.5	63.1-77.9	0.00	191	52.6	45.1-60.1	0.00		
Some college/tech school	148	76.7	69.5-83.9	0.00	145	59.6	49.4-69.8	0.00		
College grad	88	80.9	72.9-88.9	0.00	88	49.4	38.2-60.6	0.04		
<i>Poverty Threshold</i>										
<200%	218	51.4	43.1-59.7	ref	0.00	217	39.9	31.9-48.0	ref	0.00
200-299%	105	58.1	47.4-68.8	0.30	103	42.6	33.2-51.9	0.68		
300-399%	61	85.8	77.5-94.0	0.00	61	72.6	60.3-84.9	0.00		
400-599%	46	70.2	60.5-79.9	0.00	46	59.8	47.6-72.0	0.01		
500%+	105	77.9	68.3-87.5	0.00	102	60.6	50.9-70.4	0.00		
Unknown	146	58.0	49.6-66.5	0.28	145	37.7	29.6-45.9	0.73		
<i>Region</i>										
Northeast	106	70.7	63.0-78.5	ref	0.20	103	54.2	45.8-62.6	ref	0.21
Midwest	116	56.4	48.0-64.9	0.02	116	41.5	32.4-50.5	0.04		
South	397	62.2	56.5-67.9	0.08	395	46.3	41.3-51.4	0.12		
West	62	61.7	49.4-74.0	0.22	60	48.3	35.2-61.3	0.45		
<i>Metropolitan Statistical Area</i>										
No	103	48.7	40.6-56.7	ref	0.00	102	37.9	31.3-44.6	ref	0.01
Yes	578	65.6	60.8-70.3	0.00	572	49.3	44.8-53.8	0.01		
<b>Family Composition</b>										
<i>Marital Status</i>										
Married/living with partner	317	70.1	63.8-76.5	ref	0.01	314	54.2	47.9-60.5	ref	0.03
Widowed	73	62.0	48.1-75.9	0.28	73	53.4	35.6-71.1	0.93		
Divorced or Separated	181	56.9	49.1-64.7	0.01	181	40.0	32.9-47.2	0.01		
Never married	109	47.4	37.0-57.8	0.00	105	30.6	21.5-39.8	0.00		
<i>Family Size (Persons in Family)</i>										
1	318	53.2	47.7-58.7	ref	0.00	314	37.8	32.8-42.7	ref	0.00
2	217	68.5	61.8-75.2	0.00	215	52.3	45.8-58.8	0.00		
3+	146	69.6	62.2-76.9	0.00	145	54.2	46.3-62.1	0.00		
<i>Family Structure</i>										
One adult, no children	318	53.2	47.7-58.7	ref	0.00	314	37.8	32.8-42.7	ref	0.00
Multiple adults, no children	251	67.1	60.3-73.9	0.00	248	52.8	46.3-59.3	0.00		
One adult, 1+ children	14	92.0	83.4-100	0.00	14	88.1	76.2-99.9	0.00		
Multiple adults, 1+ children	98	65.5	54.9-76.0	0.05	98	44.3	35.7-52.9	0.23		

also more likely to have had the PSA test. In adjusted analyses, men aged 50–64 years had twice the odds, and men  $\geq 65$  had more than three times the odds of having heard of the PSA test as men aged 45–59 (Table 3, column 1). The odds of having heard of the PSA test increased with each level of education over the reference group. Finally, men with private or military health insurance had more than twice the odds of having heard of the PSA test than men without health insurance.

For ever having had the PSA test (Table 3 column 2), only one sociodemographic and three health status variables remained significant in the adjusted model. As expected, men 50–64 had over twice the odds and men aged  $\geq 65$  over four times the odds of ever having the PSA test as the referent (men aged 45–49). Men with private or military health insurance, those in fair or poor health, and those with a family history of prostate cancer were more likely than their referents to have had the test.

## Discussion

The present study, which relied on the 2000 NHIS, indicates that in that year almost two-thirds of African-American men aged  $\geq 45$  who did not

have prostate cancer had heard of the test and almost half had had the test.

The literature varies on the percentage of men who have had the PSA test, reflecting in part no doubt the different focuses of the surveys. In four studies, rates were 30–60%,<sup>14,25–27</sup> but a more recent study, which used 2001 data from the Behavioral Risk Factor Surveillance system for men aged  $\geq 50$  in all 50 states, found a rate of 75%.<sup>28</sup>

The present study was similar to other published studies in finding that certain demographic variables were associated with both having heard of the PSA test and ever having had a PSA test.<sup>6,13–16,20,29</sup> In the multivariate model, however, relationships with demographic variables identified in previous studies (i.e., level of education, income, region, MSA status and at least one other variable, marital status) were not found to have significant associations with the two outcome variables.

In the present study, single, never-married African-American men had the lowest percentages for both having heard of the PSA test and ever being tested. This group warrants further investigation. Perhaps being married and residing in a household

Table 2 continued

	N	Heard of PSA Test % <sup>a</sup>	CI <sup>b</sup>	GLC PV <sup>c</sup>	Wald PV <sup>d</sup>	N	Ever Had a PSA Test % <sup>a</sup>	CI <sup>b</sup>	GLC PV <sup>c</sup>	Wald PV <sup>d</sup>
<b>Health Status</b>										
<i>Health Insurance</i>										
None	94	39.6	27.9–51.2	0.00	0.00	93	21.8	11.1–32.5	0.00	0.00
Public	171	49.0	38.9–59.2	0.00	169	39.5	30.1–48.8	0.00		
Private/military	411	74.7	69.9–79.5	ref	407	58.2	52.9–63.6	ref		
<i>Health Status</i>										
Excellent	110	65.5	53.6–77.3	ref	0.72	109	46.5	35.6–57.4	ref	0.42
Very good	156	60.2	52.6–67.8	0.47	152	40.2	32.4–48.0	0.33		
Good	225	66.1	59.0–73.3	0.93	224	51.0	44.0–58.0	0.49		
Fair or poor	186	57.7	49.4–66.0	0.26	185	48.2	40.8–55.6	0.79		
<i>Family History of Prostate Cancer</i>										
Yes	42	76.0	64.3–87.7	0.03	0.04	42	64.2	52.0–76.4	0.01	0.02
No	625	62.0	57.4–66.7	ref	617	46.1	41.9–50.4	ref		
<i>Had Colorectal Screening<sup>f</sup></i>										
Yes	138	85.4	78.9–91.9	0.00	0.00	137	81.9	74.8–89.1	0.00	0.00
No	362	58.0	52.3–63.7	ref	357	39.6	34.3–45.0	ref		
<b>Perceived Risk</b>										
<i>Perceived Risk of Getting cancer</i>										
Low	399	63.9	58.2–69.5	ref	0.52	395	48.4	42.5–54.3	ref	0.81
Medium	140	64.2	56.4–72.1	0.93	139	48.6	39.7–57.5	0.98		
High	48	63.2	49.7–76.8	0.93	46	51.0	37.3–64.7	0.74		
<i>Perceived Amount of Cancer in Family</i>										
Low	507	62.3	57.1–67.6	ref	0.14	501	47.5	42.1–52.9	ref	0.38
Medium	107	69.6	60.5–78.7	0.17	106	52.9	42.6–63.1	0.41		
High	31	82.7	70.7–94.7	0.00	30	68.2	50.5–85.9	0.04		

a Standardized to the 2000 Standard Million by five-year age groups except for age; b 95% Confidence Limits; c P values for a general linear contrast comparing a row percent to its reference level. The reference levels are labeled ref; d P values for a Wald Chi-squared test for the main effect of the bivariate logistic model outcome= main-effect + age; e Excluding men with prostate cancer; f Excluding men 44 years of age or younger

with multiple adults offers more support for discussions about prostate cancer and the PSA test.<sup>15</sup> Alternatively perhaps, men who have never been married are less concerned about prostate cancer and its implications than are men who have been married.

In another study, men with a family history of prostate cancer perceived themselves at increased risk and were more likely than those without a history to self-refer to a physician for PSA testing, while men without a history were more likely to have screening recommended to them by a health profes-

sional, friend or family member.<sup>30</sup> In a study by Demark-Wahnefried et al., many men did not know that race and heredity were risk factors,<sup>6</sup> and McDavid and coworkers found that many men did not have an opinion about their risk of getting prostate cancer.<sup>31</sup> Finally, in another study, having a family history of prostate cancer was also associated with use of the PSA test.<sup>9</sup>

In the current study, which is based entirely on self-reports, an estimated 94% of African-American men without prostate cancer had no history of the dis-

**Table 3. Adjusted Odds Ratios of Non-Hispanic Black Men<sup>a</sup> Age 45 or Older Who Have Heard of a PSA Test or Having Been Tested, by Population Subgroups**

	Have You Heard of a PSA Test? (n=560)			Have You Ever Had a PSA Test? (n=553)		
	Odds Ratio	CI <sup>b</sup>	Wald PV <sup>c</sup>	Odds Ratio	CI <sup>b</sup>	Wald PV <sup>c</sup>
<b>Sociodemographics</b>						
<i>Age (Years)</i>						
45 to 49	ref		0.00	ref	0.00	
50 to 64	2.04	1.13-3.69		2.52	1.48-4.28	
65+	3.31	1.88-5.83		4.44	2.29-8.61	
<i>Education</i>						
< High school graduate	ref		0.03	ref	0.11	
High school graduate	1.88	1.04-3.41		1.28	0.72-2.30	
Some college/tech school	2.33	1.17-4.67		2.25	1.16-4.40	
College grad	3.07	1.23-7.64		1.39	0.68-2.87	
<i>Poverty Threshold</i>						
<200%	ref		0.17	ref	0.12	
200-299%	0.61	0.31-1.21		0.54	0.24-1.19	
300-399%	2.37	1.01-5.60		1.97	0.82-4.73	
400-599%	1.03	0.36-2.99		1.37	0.51-3.66	
500%+	1.25	0.54-2.91		1.05	0.46-2.39	
Unknown	1.03	0.56-1.91		0.82	0.45-1.50	
<i>Region</i>						
Northeast	ref		0.49	ref	0.53	
Midwest	0.70	0.27-1.82		0.61	0.29-1.30	
South	0.87	0.37-2.05		0.73	0.38-1.42	
West	0.47	0.15-1.50		0.53	0.18-1.52	
<i>Metropolitan Statistical Area</i>						
No	ref		0.05	ref	0.24	
Yes	1.76	1.00-3.09		1.47	0.78-2.78	
<b>Family Composition</b>						
<i>Marital Status</i>						
Married/living with partner	ref		0.64	ref	0.28	
Widowed	0.77	0.31-1.90		1.37	0.53-3.55	
Divorced or Separated	1.25	0.52-3.02		1.55	0.65-3.69	
Never married	1.05	0.38-2.89		0.80	0.21-3.12	
<i>Family Size (Persons in Family)</i>						
1	ref		0.47	ref	0.42	
2	1.62	0.73-3.62		1.69	0.77-3.72	
3+	1.37	0.54-3.51		1.76	0.64-4.86	

ease in their family. In a smaller study of men who participated in a free program for detecting prostate cancer, 40% of the men reported a family history.<sup>30</sup> Perhaps the figure in the present study is an underestimate that resulted from less awareness among our sample of prostate cancer in their families.<sup>6</sup>

Variables for perceived risk have been examined in the literature, especially in behavioral studies.<sup>8,13,30,32</sup> We found no relationship between perceived risk of getting cancer in general and either having heard of the PSA test or ever being tested. One study linked a family history of prostate cancer with greater perceived risk, but perceived risk was not directly related to test use.<sup>30</sup> Perhaps if the questions about risk in the 2000 NHIS had been more specific to prostate cancer, associations would have been observed. In examining the family history variable and the two variables for perceived risk, one might consider that many African-American men, despite having both higher incidence and mortality from prostate cancer as a group, might be less aware of the disease and be misinformed about the risk of prostate cancer or have little knowledge of their personal risk.<sup>13,31</sup>

We found that 63% of African-American men

aged  $\geq 45$  who did not have prostate cancer had heard of the PSA test, a figure that was lower than previous studies have found for African-American men. We also found that men not living in an MSA, a group that would include many rural residents, were not as aware of the PSA test and were less likely to have been tested than urban residents (who lived within an MSA), but we could not find any results for MSA status in the literature.<sup>33</sup>

This study has several strengths. Few studies have focused specifically on African-American men and on topics related to the PSA test, especially at the national level. Data for the current study were taken from a large, nationally representative survey which oversampled African-American men. The present study specifically targeted African-American men and examined within-group variations. Accordingly, our findings might be useful for those developing recommendations for policy or decision tools.

This study also has some limitations. One of the outcome variables—having ever had a PSA test—did not distinguish between one-time and more frequent use. No doubt some men had had only one PSA test with no follow-up, while others had several tests. It is important to ask men about screening his-

Table 3 continued

	Have You Heard of a PSA Test? (n=560)			Have You Ever Had a PSA Test? (n=553)		
	Odds Ratio	CI <sup>b</sup>	Wald PV <sup>c</sup>	Odds Ratio	CI <sup>b</sup>	Wald PV <sup>c</sup>
<b>Health Status</b>						
<i>Health Insurance</i>						
None	ref		0.00	ref	0.00	
Public	0.76	0.34-1.68		1.40	0.57-3.48	
Private/military	2.37	1.23-4.55		3.60	1.63-7.96	
<i>Health Status</i>						
Excellent	ref		0.28	ref	0.04	
Very good	0.94	0.43-2.09		0.94	0.46-1.91	
Good	1.64	0.75-3.55		1.63	0.86-3.11	
Fair or poor	1.74	0.77-3.93		2.44	1.13-5.28	
<i>Family History of Prostate Cancer</i>						
Yes	1.53	0.53-4.38	0.43	2.33	1.03-5.28	0.04
No	ref	ref				
<b>Perceived Risk</b>						
<i>Perceived Risk of Getting Cancer</i>						
Low	ref	0.78	ref	0.61		
Medium	0.81	0.44-1.50	0.72	0.37-1.39		
High	1.04	0.38-2.82	0.88	0.32-2.39		
<i>Perceived Amount of Cancer in Family</i>						
Low	ref	0.24	ref	0.43		
Medium	1.55	0.80-3.01	1.21	0.57-2.58		
High	2.71	0.67-0.98	2.23	0.66-7.55		

a Excluding men with prostate cancer; b 95% confidence limits; c P-value for a Wald chi-square main effect test.

tory and frequency to have indicators of compliance for organizations that recommend screening as well as to gauge the extent that men use informed decision-making. Furthermore, respondents to the NHIS may not have known whether they had had the test since physicians may offer a battery of tests during routine or other office visits, and it is possible that patients were not aware of the purpose of some of those tests (one of which might have measured PSA levels). There is also the possible limitation of self-report when conducting one-on-one interviews. Misreporting can occur and can vary among individuals and groups, which could lead to bias.<sup>34,35</sup>

Findings from this present study offer some insight for possible research. Future studies and interventions aimed at defined groups of men (e.g., men who reside in rural areas, African-American men) may be useful for gauging awareness of prostate cancer screening and knowledge about the disease. Based on the present study, several other variables might be further explored. For example, single, never-married men might be examined to confirm their substantially lower awareness of the PSA test and their lower use of that test. Roles of persons, such as wives, partners, and “significant others,” regarding awareness and test use might benefit from further examination. Finally, variables dealing with perceived risk should be explored in greater detail, with risk of prostate cancer specified.

This study also raises several issues regarding the study of African-American men and prostate cancer:

- 1) How aware is this group of the controversies about screening for prostate cancer (e.g., it has not been proven that screening and treatment actually improves survival)?
- 2) Where do African-American men get their information about prostate cancer and the PSA test?
- 3) How knowledgeable is this group about their family histories?
- 4) How much do African-American men know about the incidence of prostate cancer, how it is diagnosed, the nature of available treatments (both their effectiveness and side effects) and the role of age in making decisions about treatment?
- 5) Are there cultural explanations for the attitudes and behaviors of African-American men related to prostate cancer and PSA testing? As noted, African-American men are at greater risk for being diagnosed with prostate cancer and at higher risk of mortality from the disease. Some organizations recommend offering PSA testing at an earlier age for African-American men and men with a family history of prostate cancer since they are at greater risk,<sup>36</sup> while others do not recommend PSA testing.<sup>37</sup> However, all of the major medical organizations

recommend that doctors discuss with their patients the benefits and risks of prostate cancer screening.<sup>38</sup> In order for men to participate in informed or shared decision-making, knowledge of prostate cancer screening-related issues is crucial.

## REFERENCES

1. U.S. Cancer Statistics Working Group. U.S. cancer statistics: 2001 incidence and mortality. 2004; 1-154. Atlanta, GA, Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute.
2. American Cancer Society. Cancer facts and figures—2004. Atlanta, GA, American Cancer Society; 2004.
3. Moul JW. Targeted screening for prostate cancer in African-American men. *Prostate Cancer Prostatic Dis.* 2000;3:248-255.
4. Powell IJ, Banerjee M, Sakr W, et al. Should African-American men be tested for prostate carcinoma at an earlier age than white men? *Cancer.* 1999;85:472-477.
5. Bennett CL, Ferreira MR, Davis TC, et al. Relation between literacy, race and stage of presentation among low-income patients with prostate cancer. *J Clin Oncol.* 1998;16:3101-3104.
6. Demark-Wahnefried W, Strigo T, Catoe K, et al. Knowledge, beliefs and prior screening behavior among blacks and whites reporting for prostate cancer screening. *Urology.* 1995;46:346-351.
7. Conlisk EA, Lengerich EJ, Demark-Wahnefried W, et al. Prostate cancer: demographic and behavioral correlates of stage at diagnosis among blacks and whites in North Carolina. *Urology.* 1999;53:1194-1199.
8. Agho AO, Lewis MA. Correlates of actual and perceived knowledge of prostate cancer among African-Americans. *Cancer Nurs.* 2001;24:165-171.
9. Taylor KL, Turner RO, Davis JL, et al. Improving knowledge of the prostate cancer screening dilemma among African-American men: an academic-community partnership in Washington, DC. *Public Health Rep.* 2001;116: 590-598.
10. Fearing A, Bell D, Newton M, et al. Prostate screening health beliefs and practices of African-American men. *ABNF J.* 2000;11:141-144.
11. Wilkinson S, List M, Sinner M, et al. Educating African-American men about prostate cancer: impact on awareness and knowledge. *Urology.* 2003;61:308-313.
12. Barber KR, Shaw R, Folts M, et al. Differences between African-American and Caucasian men participating in a community-based prostate cancer screening program. *J Community Health.* 1998;23:441-451.
13. Steele CB, Miller DS, Maylath C, et al. Knowledge, attitudes and screening practices among older men regarding prostate cancer. *Am J Public Health.* 2000;90:1595-1600.
14. Eisen SA, Waterman B, Skinner CS, et al. Sociodemographic and health status characteristics associated with prostate cancer screening in a national cohort of middle-aged male veterans. *Urology.* 1999;53:516-522.
15. Weinrich SP, Boyd MD, Weinrich M, et al. Increasing prostate cancer screening in African-American men with peer-educator and client-navigator interventions. *J Cancer Educ.* 1998;13:213-219.
16. Brown ML, Potosky AL, Thompson GB, et al. The knowledge and use of screening tests for colorectal and prostate cancer: data from the 1987 National Health Interview Survey. *Prev Med.* 1990;19:562-574.
17. Boyd MD, Weinrich SP, Weinrich M, et al. Obstacles to prostate cancer screening in African-American men. *J Natl Black Nurses Assoc.* 2001;12:1-5.
18. Swan J, Breen N, Coates RJ, et al. Progress in cancer screening practices in the United States: results from the 2000 National Health Interview Survey. *Cancer.* 2003;97:1528-1540.
19. Volk RJ, Cantor SB, Spann SJ, et al. Preferences of husbands and wives for prostate cancer screening. *Arch Fam Med.* 1997;6:72-76.
20. Myers RE, Wolf TA, McKee L, et al. Factors associated with intention to undergo annual prostate cancer screening among African-American men in Philadelphia. *Cancer.* 1996;78:471-479.
21. National Center for Health Statistics. National Health Interview Survey: NHIS survey description. Hyattsville, MD: National Center for Health Statistics; 2001.
22. U.S. Census Bureau. Geographic Areas Reference Manual. Washington,



DC, U.S. Department of Commerce; 1994.

23. U.S. Census Bureau. Current Population Survey: Poverty 2000. Washington. U.S. Department of Commerce; 2001.

24. Shah BV, Barnwell BG, Bieler GS. SUDAAN. Research Triangle Park, NC: Research Triangle Institute; 1997.

25. Carter F, Graham E, Pal N, et al. Prostate cancer screening in primary care. *Southern Med J*. 1999;92:300-304.

26. Legler JM, Fever EJ, Potosky AL, et al. The role of prostate-specific antigen testing patterns in the recent prostate cancer incidence decline in the United States. *Cancer Causes Control*. 1998;9:519-527.

27. Condon K, Suarez L, Perotta D. Screening with the prostate specific antigen test—Texas, 1997. *MMWR Morb Mortal Wkly Rep*. 2002;49:818-820.

28. Sirovich BE, Schwartz LM, Woloshin S. Screening men for prostate and colorectal cancer in the United States: does practice reflect the evidence? *JAMA*. 2003;289:1414-1420.

29. Myers RE. African-American men, prostate cancer early detection examination use and informed decision-making. *Semin Oncol*. 1999;26:375-381.

30. Taylor KL, DiPlacido J, Redd WH, et al. Demographics, family histories and psychological characteristics of prostate carcinoma screening. *Cancer*. 1998;85:1305-1312.

31. McDavid K, Melnick TA, and Derderian H. Prostate cancer screening trends of New York State men at least 50 years of age, 1994 to 1997. *Prev Med*. 2000;31:195-202.

32. Arar N, Thompson I, Sarosdy M, et al. Risk perceptions among patients and their relatives regarding prostate cancer and its heredity. *Prostate Cancer Prostatic Dis*. 2000;3:176-185.

33. Raich PC, Zoeter MA, Hagan M, et al. Perception of preventive health needs in a prostate cancer screening population: a preliminary report. *J Cancer Educ*. 1997;12:224-228.

34. Jordan TR, Price JH, King KA, et al. The validity of male patients' self-reports regarding prostate cancer screening. *Prev Med*. 1999;28:297-303.

35. Paskett ED, Tatum CM, Mack DW, et al. Validation of self-reported breast and cervical cancer screening tests among low-income minority women. *Cancer Epidemiol Biomarkers Prev*. 1996;5:721-726.

36. American Cancer Society. Cancer Facts and Figures—2002. Atlanta, GA: American Cancer Society; 2002.

37. U.S. Preventive Services Task Force. Guide to Clinical Preventive Services, 3rd ed. Periodic Updates. Rockville, MD: Agency for Healthcare Research and Quality and the U.S. Public Health Service; 2003.

38. National Guideline Clearinghouse (NGC). Guideline synthesis: screening for prostate cancer. National Guideline Clearinghouse website. Rockville, MD; Dec. 28, 2003 (updated 2003). Accessed 04/16/04. Available at <http://www.guideline.gov>. ■

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